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## FARM MANAGEMENT

### ROUND TABLE DISCUSSION

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Agricultural Economics treats of those economic forces with which the farmer has to deal. Some of these forces relate to the problems of production, others relate to the problems of distribution. On this occasion the aim is to direct our attention primarily to the problems of production, popularly known as farm management.

This field, called by some the economics of farm management, by others simply farm management, long remained uncultivated by scientific men. Practical men have plied this art more or less intelligently since the earliest time. Furthermore, many of the earlier agriculturists were economists rather than chemists or biologists. With the development of chemistry, bacteriology, and other physical and biological sciences, the economic aspects of the questions of farm management were left to the farmer unaided, while the new sciences were used in every conceivable way to throw light upon his problems. This resulted in the one-sided development of our agricultural education, which accounts for the fact that the wise farmer mistrusts many of the statements handed him by the colleges and experiment stations. Only recently, the chemist of a western experiment station published the statement that the farmers of the state were losing \$25,000,000 annually because of the way in which they were handling the manure produced. The chemist was asked if he had deducted the costs of introducing his methods of saving the manure. He had not, and the farmers may rightly ask the question: What part of this \$25,000,000 will be added to our profits if we use more labor and capital in caring for the manure on the farm?

The insight which the physical and biological sciences can give to the intelligent man who is producing crops and live stock for profit is invaluable, but, without the guiding hand of the man with the economic viewpoint, scientific agriculture is a ship without a rudder and well deserves the opinion many practical men hold regarding it.

It is unfortunate that so little attention is given this subject by

men of economic training. Fortunately, however, the field is not being left without workers. Men from many other branches of agricultural investigation have observed this unoccupied field and entered with energy upon the work of gathering the materials for a new science—the science of farm management—including the whole business side of agriculture. These men have entered upon this task without the economic training which might well be desired, but, while progress is slow and expensive, the outlook is hopeful. It appears that agricultural economics is likely to be benefited more by the men without economic training who are working in the field than by the men of economic training who are not working in this field. This much to call the attention of economists to this important line of work.

Some of the problems of farm management which require the attention of the economist will be briefly summarized—the choice of a farm, the size of the farm, the crops to grow, the method of realizing on the crops, the kinds of live stock to keep if any, and numerous other questions which relate to the question, “What shall I do?” Many other questions relate to “How to do it.” The problem here is one of proportions,—for example, the problem of proportions between land, labor, and equipments in growing a given crop; the problem of proportions between expenditure for food and for shelter; the problem of proportions between investment in feed and in cows in the dairy business, etc.

The question of the proper proportion between land, labor, and equipment, commonly called the problem of intensity of culture, is one of vital importance today. Land has increased in value; so have the products of the land, and great leaders like J. J. Hill are asking that the produce per acre be doubled. The question is thus raised as to the proper degree of intensity of culture under the new conditions. Upon the proper solution of this question depends the profits of the farmers and the welfare of the nation.

The economic forces which determine what the farmer should do and how he should do it lend themselves to inductive study. The historical, the geographical, the statistical, the accounting, and the experimental methods are all capable of being used effectively in this field. These methods all throw light upon the problem, but when they have been used to their fullest extent, farm management will remain a business in which the offhand judgments of the operator from day to day must be made in the midst of a

high degree of uncertainty. This is true not only because of changing conditions as to production and marketing, but also because of the highly uncertain quantities of the laborers upon which the management must depend. The farm labor problem occupies the center of the stage as soon as one leaves academic halls and state experiment farms and enters upon the less remunerative task of managing a farm for profits. How to secure labor and how to direct labor in a profitable manner in farm work may well receive much attention in this discussion.

T. N. CARVER: I have been in the habit of dividing the problems of farm management under three general heads: (1) primary problems of investment; (2) problems of internal administration (farm management proper); and (3) problems of buying and selling.

As already suggested, the students of farm management have given their chief attention to the second of these heads, with a good deal of incidental attention to the first. Under this should come the question of the kind of land to buy, the kind of equipment, stock, etc., and especially the great law of proportionality in its application to successful farming.

So long as the farmer is growing staple crops, for which there is a well organized market and which always sell at a quotable price, the problems of buying and selling are doubtless of less importance than the other two groups. The great problem for the farm manager under these conditions is to reduce the cost of production under his efficient administration. But in proportion as agriculture becomes specialized, or as the farmers engage in the production of agricultural specialties, in that proportion do the problems of buying and selling rise in importance. There is an undoubted tendency toward this kind of agricultural production, and therefore it is safe to say that the problems of buying and selling are as a matter of actual historical fact increasing in importance every year. It would probably not be very far from the truth at the present time to say that they are the most important of all. For every farmer who can buy and sell his products successfully, there are probably ten who can grow them successfully. Or for every farmer who fails in business on account of his inability to grow crops efficiently, there are probably ten who fail on account of their inability to buy and sell to advantage.

One of the fundamental problems of farm management, however,

which has hitherto received but little attention, is that of determining what constitutes good farming. This probably comes under the first of the three headings. The question as to what constitutes good farming is pretty nearly summarized in the question: Does good farming consist in getting a large product per acre or a large product per man? A recent writer in *Wallace's Farmer*, in comparing the agriculture of Iowa with that of Bavaria, reaches the conclusion that in Bavaria the average acre is about seven times as efficient in catching and storing up the sun's energy in the form of crops as the average acre in Iowa; but that the average farm worker in Iowa is about six times as efficient as the average worker in Bavaria, according to the same test. Now it is very easy for long-distance farmers to expatiate on the superiority of Bavarian agriculture, but the farmer who is in the actual business of farming is not so much interested in the product per acre as in the product per man. It is upon the product per man that the well-being of the average farmer depends. And it must be borne in mind, therefore, that a larger product per acre is desirable when, and only when, it can be secured without the slightest diminution in the product per man. The American farmers' use of labor-saving machinery has been designed mainly to increase the product per man, and has had comparatively little effect as yet in increasing the product per acre. There must be no reduction in the amount of power and machinery used by the American farmer. If he is to get a larger product per acre, it must be done not by dispensing with machinery and resorting to methods of hand cultivation, as is done in older countries, but by the use of even more machinery than is now used and, in addition to this, a greatly increased use of fertilizers, and of scientific knowledge. This is a problem of farm management which is fundamental, not only from the standpoint of the individual farmer, but from the standpoint of the nation at large; for upon this depends the character of rural civilization and the standard of living of the farming people.

C. K. GRAHAM: It is an old but nevertheless a true saying that "necessity is the mother of invention." Probably all of you know that Hampton Institute is an industrial training school for the Negro and Indian. Many years ago a six-hundred acre farm was given to us with the expectation that it would answer a two-fold purpose, first, to furnish a source of revenue, and, second, to

give boys some agricultural training. We gave these boys employment for a year, paying them for the work and permitting them to go to night school, the money earned being used to defray expenses while in day school the following year. Seven or eight years ago it was about decided that we could better afford to make these fifty boys a present of the one hundred dollars or so that each earned, as the farm was being run at an annual loss of many thousand dollars, to say nothing about the waste of energy on the part of the administration.

Five years ago when taking charge of the agricultural department I was told that the trustees felt they had had about all the experience with this Shellbanks farm they could afford, and that we either had to demonstrate that the farm could be made to pay expenses or we should have to cease advocating agriculture as a means of earning a living. To put it plainly,—we either had to make good or get out.

We have found the people in the Department of Agriculture at Washington, D. C., are only too glad to help when asked for assistance. At our request the Bureau of Farm Management sent men to look over the farm, make a survey, and give us some idea of where we were losing our money. Our money crop was milk; that is, we could sell all the milk we could produce. With the equipment then on the place we found we could easily care for and milk 100 to 150 cows, the only question being economical feeding. To profitably produce a certain amount of milk it was necessary for us to grow feed not only for these 150 cows, but for many heifers and calves, as well as for 33 horses.

This was by no means the only problem that came up. Most farmers can hire men for five or eight months in the year, while we have to find work for our boys for the whole twelve months in the year. We therefore had to arrange our work so that both boys and horses were continuously employed, and I may say that we have so far succeeded that we now have 35 boys and 25 horses doing the same amount of work that it took 51 boys and 33 horses to accomplish five years ago. A very interesting feature is that these boys not only do the work, but do it with greater ease and less friction. The horses also are in much better condition than ever before.

While we are not securing much larger yields per acre, we are getting a great deal more from the land than we were at that time. In the South, especially in our section, we make it a point

to work our land continuously. The winters are mild. We sow oats, wheat, and rye in the fall; in fact, we can sow oats up to about the middle of November. We can plow practically every day in the year. We plant potatoes about February 15th, and begin planting corn about April 15th, so that by careful planning or figuring ahead we can keep our boys and teams in the field the year round.

The farm is surveyed and blue prints have been made, each field measured and numbered, and recorded in our ledger under that number.

At the end of the day each boy makes out a slip stating the field or fields in which he has worked, the names of the horses or mules, and the kind of work he was doing; that is, whether he was plowing, harrowing, or whatever it may have been. Should it happen that he was hauling manure, he writes on the slip the number of loads, and the place from which it was hauled. In this way the dairy, horse barn, and piggery get credit and the field is charged with the manure as well as with the time required to handle it.

These records have brought out some peculiar facts. In the first place we find that only about 75 per cent of the total time was charged in definite fields; that is, about 25 per cent of the time is spent in chores. Now by chores we do not mean working in the dairy, poultry, or piggery, because we class these as separate industries with special boys to look after them. But what we mean is actual farm chores, such as repairing tools, bridges and fences, digging ditches, etc. We have also found that some of the more common crops have not been grown by us with a profit. For instance, alfalfa, which is advocated nearly everywhere, costs us practically \$50 a ton for the first ton taken from the field, and we have never yet had an alfalfa field that has paid expenses.

Ensilage corn, which in almost every section is very profitable as a green feed, has not proved as profitable on our farm as soja beans or cow peas. That is, these two crops cost much less to harvest, and leave the land in such excellent condition that we can better afford to grow them, and many times we have had nearly as many tons of green soja beans from a field as we have had green corn.

We have also found that certain horses are boarders; that is, whenever possible boys avoid working them. By keeping a time

book for horses just as we do for the boys, we find we have a few that are often "off feed" or not satisfactory for certain particular tasks. They do not appear to be idle often, but still often enough so that in the course of a year figures show that in one or two cases it would have paid us to have killed them rather than to have fed them.

Now ladies and gentlemen, all of you who know anything of farming know that the average farmer is always behind with his work. Chores have been left undone for weeks, and if you should mention it to him he would say, "Yes, I intended to do that, but as yet have not found the time." Now this is nothing more nor less than a lack of good management; the man has not figured ahead. Here in Massachusetts I should expect that you would want to plant corn about May 15th or possibly May 1st, and know that a certain amount of work must be done before that time; a certain number of acres must be plowed; a certain amount of manure hauled; a certain amount of harrowing done; and you have about so many days' work in preparing roads and bridges and fences. Certain time must also be allowed to cut and haul wood and coal, and do the hundred and one small tasks that come into every farmer's life. We have found that it pays to take a day once in a while and figure out just how many days' work must be done before we can get to certain tasks. From week to week and month to month we check up to see whether we have accomplished as large a proportion of the work as we had expected, and by checking ourselves in this way it is quite easy to keep ahead. Often we find our work one or two weeks ahead of the time we estimated, and it is seldom that we cannot take on a little extra work or outside contracts that otherwise we should think impossible.

**J. A. VALENTINE:** The relation between accounts and accounting is that between the facts of a science and the science itself. Facts are the groundwork of, for example, history; the science of history concerns itself with the analysis, coördination, and interpretation of the facts. Facts are likewise the groundwork of biology, astronomy, chemistry, physics, and other sciences. It is the business of the biologist, the astronomer, the chemist, the physicist, to correlate and interpret the facts—to explain their meanings and relations.

Accounts record the facts of a business. Accounting analyzes



and interprets the facts so recorded. That is, bookkeeping shows what takes place in a business, while it is the function of the accountant to take the facts thus gathered, and in the light of other knowledge which he has, to sift the important from the unimportant, to make clear the relation of the facts to one another, to analyze and classify them, and to interpret the whole body of data set forth in the accounts, to the end that the present condition of the business may be clearly understood and that its progress—or the lack of it—and the reasons therefor may be shown. It is for the accountant to determine from recorded facts whether the business is being conducted economically and efficiently, and to ascertain the effects of changes in methods.

Now, are accounts and accounting, as thus defined, of any use to the farmer or to the economist interested in the problems of farm management?

It is obvious that before we can pass judgment on the economic facts or status of an enterprise—before we can say that it is economically efficient or the reverse, that it is profitable or unprofitable, or that changes in methods would or would not be beneficial—we must know what the facts of the business are. In other words, before we can reason about what is happening, before we can commend, criticise, or intelligently suggest changes, we must know what *is* happening.

This is a truism so obvious that it needs but to be stated to be admitted. Yet we find that in the case of one of our greatest industries, agriculture, the operators, in contrast to almost all other business men, *do not*, in the vast majority of cases, know the facts of their business—they have not kept accounts, and do not know exactly what is happening.

It is therefore plain that one of the first duties of the student of farm management is to emphasize the truth that progress in the solution of many of the economic problems of agriculture is directly dependent upon the gathering of facts which will show what actually happens—that is, upon the keeping of proper accounts. In the absence of definite data, we may speculate and theorize and spin hypotheses about the business problems of the farm—as the old philosophers used to spin hypotheses about the constitution of the solar system, without much knowledge of the facts of astronomy—but, if we are to make real progress towards more effective work on the farm, we must know the real facts—we must have data.

Having secured the data, the next step is to find out what the facts really mean—to interpret them. From the standpoint of the solution of the problems of farm management, it is very much more important to know what facts mean when you get them than it is to gather an undigested welter of miscellaneous data.

No one will get anything very useful or important from the facts revealed by farm bookkeeping, who has not a fundamental grasp of the economic forces at work in the field of agricultural production. If he lacks that understanding of agricultural economics, if he is a mere bookkeeper and compiler of facts, he is sure to go far astray when he attempts to solve by bookkeeping and accounting methods the complex problems of farm management.

In the attempt to make bookkeeping and accounting contribute to the solution of these problems, crude work has unquestionably been done. This has had two results: (1) it has, in the minds of some, discredited bookkeeping and accounting as methods useful in the solution of these problems; and (2) it has aroused, in the minds of others, unreasonable and unwarranted expectations as to the possibilities of this method.

There is therefore especial need of a clear statement of the relation of the accounting method to the problems of farm management. If it can once be made plain what accounting can do to help the student of farm management, and—equally important—what it *cannot* do, we shall neither fail to use this method where it is applicable, nor demand impossible things of it.

Much of the accounting work that has hitherto been done in connection with farm management, and unfortunately some of it that has been published, can only be characterized as naïve. The theory has apparently been this:

“We will keep cost accounts to determine the cost of producing various crops. We shall thus find out what crops and industries pay best on the farm. Then we will raise the most profitable crops and adhere to the most profitable industries, discarding the less profitable or unprofitable branches of production. It has been shown, for example, that we can weed out the unprofitable cows by the use of the scales and the Babcock test. Now we shall proceed, by means of cost accounting, to weed out the unprofitable crops and industries—and forthwith our problems will be solved and we shall live happily ever after.”

Our friends then go to work with pencils and ledgers. They

gather data from the farmers, they determine the cost and distribution of man and horse labor, they figure interest on the value of the land, buildings and equipment used, they calculate all the other expenses involved, they average, they estimate, they compile—and finally there are evolved tables showing the average cost of producing wheat, corn, milk, or what not. To those of us who are hopefully waiting at the portals for further light on the problems of farm management, the result is held up as a useful guide in practical farming operations.

While we must admire the industry and good intentions of the busy compilers, we cannot but regret that the importance of their results, and the accuracy of their reasoning from them, are often seriously lessened by their failure to grasp the significance of the farm as an economic unit, and by their lack of knowledge of the theory of the by-product—a theory that is well understood by many of the better commercial accountants, but which is unfortunately still largely an unknown quantity to most of the agricultural fraternity.

It would indeed be pleasant if the only business problem of the farmer were to figure out, by cost accounting methods, or have figured out for him, the most profitable crops and lines of production, and then to develop these and abandon the rest.

Unfortunately, this is not the case. If the average farmer could devote all of his time and energy, throughout the year, to one or two things, it might be possible to arrive at some such simple solution. The average farm, however, is a business unit made up of several more or less related industries, producing a number of different products which claim the time and attention of the farmer at different times and in different degrees.

The business problem of the farmer is so to select his lines of production and so to combine different products or industries as best to utilize his land, labor, equipment, working capital and executive ability, and to realize the *largest net profit* from his farm as a producing unit.

The most profitable combination will vary with the farm, the farmer, and with conditions off the farm. That is, the most profitable combination will not be the same for different farmers on a given farm at a given time; or for a given farmer on the same farm at different times; or for a given farmer on different farms at the same time.

Therefore it will never be possible, by the accounting method

or in any other way, to lay down specific rules good for all times and places and for all men, or to say generally exactly what a farmer should or should not raise or do. It is much more important to develop correct methods of reasoning about the business problems of the farm than it is to provide specific solutions which are good only for a given farmer at a given time and place.

Progress in the solution of the problems of farm management depends, as has been said, upon the gathering of accurate data—but it depends, much more, upon the correct interpretation of the data gathered, which in turn depends upon a knowledge of the economic principles involved. How necessary this knowledge is, and how easy it is to go astray without it, may best be illustrated by concrete examples.

If you should say to a dairyman: "It may be good business to produce milk at 6 cents per quart and sell it for 3 cents per quart, or even to throw it into the gutter," he would probably be inclined to doubt your business judgment or even your sanity. If, however, you were to say to him: "It may be good business to knock calves in the head at birth, and if necessary go to the expense of burying them," he would, if he is familiar with the conditions of the dairy business in some parts of the country, probably recognize your statement as entirely valid in some cases. He knows that if cows are to be kept at a satisfactory level of milk production calves are necessary, even if it costs money to get them and even if it does not pay to raise them and they are worth less than nothing when born, as they may be. If the agricultural cost accountant finds that milk is being produced for 6 cents and sold for 3 cents or even being thrown away, he may, if he is of the naïve school previously referred to and is shortsighted enough to examine only a part of the economic facts, join the average man, who is equally shortsighted, in nimbly leaping to conclusions in condemning the business folly of such a practice. Yet such seeming folly may easily be shown to be business wisdom under some circumstances. For example, a man is engaged in the raising of pure-bred dairy cattle. The prices he is able to secure for the stock depend on the records his cows are able to make. To make records the cows must be milked. If by reason of the records made the stock brings sufficiently high prices, the breeder may well be able to afford to sell his milk at less than cost. If it should happen that there were no market for the milk which would make it worth while to pay the necessary costs of delivery,

the milk might conceivably be thrown away entirely. In this case the milk is a by-product, pure and simple. Whatever is received for it, less the costs of delivery, is gain, whether it covers the other costs or not. It may happen that the gains from the live stock alone would not be sufficiently large to justify selling the milk at an exceedingly low price or giving or throwing it away, but that if *something near* the cost of production can be secured, even if the whole cost is not covered, the business can be conducted at a profit.

Take another case. Suppose data had been gathered on the cost of producing, under given conditions, a number of different crops. All cost items have been included—the cost of man and horse labor, the machinery charge, cost of seed and fertilizer, cost of harvesting the crop, and interest on the value of the land used. It is found that at a given scale of prices some crops pay a much higher return per acre or per hour of labor than others.

Shall we, then, choose only those crops which pay the highest return? The agricultural cost accountant of the naïve school might reply in the affirmative. But let us examine *all* the facts. After doing so we may reach some very interesting conclusions. For instance:

1. It may be good business judgment to include among the crops raised one or more which are far down in the scale of net returns.

2. It may even be wise to raise one or more crops which show no net profit whatever when charged with all costs, including the rent of land and full price for labor.

3. Two crops which both show high net returns may result in less profit to the farm than two others which are both lower in the scale of net returns.

How is it possible that conclusions like these, which seem to contradict the facts, can be valid?

These conclusions are valid because in addition to the net returns per acre or per hour of labor, *other factors* enter into the problem of the selection of crops and produce a definite effect upon the net returns of the farm business as a whole. We must carefully consider, for example:

1. The demand which a given crop makes upon the labor supply of the farm.

2. The effect of the crop upon the fertility of the soil.

3. The place of the crop in a rotation.
4. The incidental benefits or drawbacks of the crop.

The effect of these factors may well be examined a little more in detail.

1. Two crops, both highly profitable from the standpoint of net returns, may make demands upon the farm labor supply at the same time, so that each crop limits the amount of the other that can be produced, and both, while giving profitable employment to the farm labor for a limited time, may leave it entirely without profitable employment at another period.

2. Some crops make much heavier demands on the soil than others, and either require expensive fertilization to restore the soil to its former condition of productiveness or leave it in an exhausted condition.

3. The same crop cannot, as a rule, advantageously be raised continuously on the same soil. A rotation is usually indicated. Some crops which are relatively unprofitable may, when combined with other crops, result in a larger net profit than other crops apparently more profitable, which, however, fail to meet the needs of a good rotation. Also, a crop which cannot even bear its full charge for labor or land rental, or both, may in combination with other crops in a rotation result in a larger net profit than another crop apparently more profitable, but not adapted to the rotation. That is, a crop apparently raised *at a loss* may be profitable to the farm as an economic unit.

4. A crop apparently unprofitable may really not be so, because it prepares the soil for profitable yields of crops to follow, by improving the tilth or supplying humus or nitrogen to maintain fertility and producing power.

These facts make it clear why it is that two apparently highly profitable but competing crops may result in less net profit than two apparently less profitable but non-competing crops—why it may be good business to include in the cropping system crops apparently relatively unprofitable. They also indicate the danger, for the man who is eager to apply business principles to the solution of his farming problems but who lacks training in the fundamental economic principles that underlie agricultural production, that lurks in some of the cost statistics which have been published.

What help, then, may reasonably be expected from accounts and accounting in the solution of the complex economic problems of farm management?

1. The more general practice of keeping simple financial (not cost) accounts among farmers—whether the accounts are kept by the farmers themselves or are kept for farmers by associations, colleges, or the Department of Agriculture—will enable them to ascertain the solvency of their business at stated times and to find out whether the business as a whole is progressing or regressing.

This is fundamental to the permanent success and prosperity of the farmer. When land values and costs of all kinds were low, and when the rise in the price of land usually more than offset any losses due to poor business management, the keeping of accounts and a knowledge of the real condition of the business were perhaps less necessary. Now, however, high-priced land, labor, feed, building material, and the high cost of living in general make the margin of profit narrow at best. If the farmer is all the time unconsciously “running into the red,” as bookkeepers say, business disaster is ahead of him. Accounts will show whether or not this is the case.

If the business as a whole exhibits consistent annual gains, the farmer, if he wishes, may stop there, without inquiring whether or not the gain is a balance between certain gains and certain losses, and whether this net gain might not be made larger by eliminating losses. If, however, there are consistent annual losses, action must be taken or ultimate disaster is certain. A further study of conditions must be made and the losses must be stopped; or, if conditions are found to be such that the business on its present basis cannot be operated at a profit, a radical reorganization must follow.

Until farmers in general keep or have kept for them at least simple accounts, and have the facts which will show them whether they are solvent and in which direction they are moving financially, it is unreasonable to expect any very great progress in the solution of the more complex problems of farm management. A man who does not know and is not interested in the big economic facts of his business is not likely to take much interest in or give intelligent coöperation to movements for the solution of the smaller problems of farm management.

2. Cost accounting, when intelligently used by trained men, is a valuable means of comparing the economic value and usefulness of different crops, animals, machines, processes, and methods. If we know what it costs to produce different crops, under given conditions, and we interpret this information in the light of other

economic facts bearing on the problem of crop selection, this knowledge of costs will prove useful in working out a cropping system that will result in the largest net profit.

Similarly, the economic usefulness of different animals may be compared by means of cost records, carefully gathered and intelligently interpreted. What sort of cow is the most profitable under given conditions—a pure-bred or a grade, a large cow or a small cow, a cow giving much low-testing milk or less high-testing milk, one that is fed at high pressure or at a lower cost with a lower production?

So also with machinery. What is the value to the farm of a given machine? What does it cost to use it? Does it pay to use the machine at all? Would not some other machine do the work more cheaply? These again are questions which can only be answered correctly by gathering and interpreting the facts.

Is it cheaper to deliver milk by team or by automobile? Is it more profitable to make milk into butter and feed the skim milk, to wholesale the milk or cream, or to deliver at retail? What is the best form of barn to use—one which is expensive and warm and requires less feed for the cows, or one which is cheaper and less warm, but requires more feed for the maintenance of bodily heat?

There is an almost infinite variety of questions of this kind, affecting all that is done on the farm, which have in the past been given rough-and-ready answers on the basis of experience, or which have been answered by following traditions which may have arisen, and often did arise, in conditions which have entirely passed away, so that the thing continues to be done in a certain manner without any present reason, but simply because it has been customary to do it in that way. This is perhaps more true in farming than in any other industry.

These are questions which cannot be answered for all men, all times, and all places—the answers will vary with conditions—but for given conditions they may, in many cases, be answered correctly, and may only be answered correctly by gathering and interpreting the financial facts—that is, by cost accounting methods.

The great complexity of agricultural cost accounting makes it impracticable, in most instances, for the farmer to do more than keep simple financial accounts and supply such data as is needed for the further study of these problems by our agricultural colleges and by the Department of Agriculture. As no



final answers good for all times and all places can be worked out even by the latter, the study of these questions by experts must be continuous, and their findings, and the use made of them by practical men in the solution of everyday problems of farm management, must be subject to constant revision as conditions change.

Those who look to cost accounting as a sort of cure-all for the business perplexities of the farmer and as the means of solving, once for all, his economic problems, making his way thenceforth straight and easy, should recognize the futility of such hopes, and devote themselves to the correct solution, by the accounting method, of such concrete economic problems of a given time, place, and set of conditions as lend themselves to treatment in this way, and to the development of correct methods by which other similar problems, arising with changing conditions, may be solved.

RICHARD HITTINGER: When the Faneuil Hall Market was first established, there was no such thing as greenhouse produce, and no provisions were made for the marketing of such produce in the winter. Today the market gardener is in the market every market day in the year. He is at the mercy of the weather, hot, rainy, snowy, cold.

What should be provided is a covered market where he can get under shelter, and sell his produce without being exposed to these changes, not only for himself personally, but also because his produce would be in much better shape when it reaches the consumer. Take corn and peas, for instance. These and other vegetables are on the wagon, with canvas tied down to protect them from the rays of the sun and from dust. Being under cover, and if kept there some time because the market does not happen to be brisk, they are liable to "heat," and lose much of their natural sweetness.

In the winter months, with lettuce, celery, and other perishable goods, the wagon is covered well to keep out the cold, and when it is opened up the cold strikes in, and the vegetables are liable to be frozen before they can be removed to safety.

With a load of some two or three hundred boxes of lettuce and celery, it is hard to handle it in extreme weather without its being frozen. If it is chilled, the consumer gets a poor article. With a covered market the right degree of temperature could be maintained, the people could buy with more comfort, and it would

mean that the market gardener could maintain a more equable price. It seems to me a subject well worth looking into.

W. H. BOWKER: I fear that I cannot contribute anything to this Round Table discussion. Farm management includes a good many things besides the running of the farm and keeping the accounts thereof. I want to say right here that running a farm is more complicated than running a business. I confess that it stumped me. When I was running my farm at Barre, I tried to introduce certain business forms similar to those which I used in my business, but I could never get them kept satisfactorily. My farm was too small a unit to enable me to employ a superintendent with head enough or time enough to keep the accounts and reports. Moreover, a working farmer or a working foreman has not the strength or inclination after a hard day's work to do it. Therefore, I discarded all forms and reports except the milk report of the cows and the cash account showing receipts and disbursements. The milk record of each cow was absolutely essential to determine whether my cows were efficient or otherwise—whether or not they were paying their keep with a profitable margin.

We must not complicate farm management, otherwise we will discourage the working farmer. Neither must we mislead him in the matter of coöperation. Coöperation is essential, but we must first teach him to coöperate in standardizing and selling his products. Products well sold will give the farmer a part of the needed quick capital with which to buy. Thirty-five cents of the consumer's dollar is too small a share for the farmer. He should, at least, have sixty cents of it, if not more. He cannot coöperate in buying until he has more quick capital or can obtain it from some source. The country banks should lend it to him, but as now conducted, they are channels by which the resources of the rural districts are drafted away to the city and there employed by bankers in speculation. It is much easier for country banks to loan their money on collateral security to bankers and brokers than to farmers, and yet what are banks in the country for except to serve the rural population, not alone in collecting, but in loaning funds in the community? I believe the national or state charters of rural banks should be canceled unless they are able to loan at least 75 per cent of their loanable funds in the communities in which they are located. Otherwise they defeat a part of the object for which they were chartered.

Finally, we must do everything we can to encourage the farmer to build up and maintain a home, for, as Henry Ward Beecher said, "The best product of the New England farm is its men and women." God help this country when its tillable lands are worked in units of one thousand acres or more. It is the small farmer, who works a quarter section or even a forty acre lot and at the same time maintains a home, whom we want to help in every way possible.

WILBUR O. HEDRICK: The place which Farm Management holds in the orderly development of courses of study in the curricula of agricultural colleges indicates the newness of the subject. Dean Davenport, of the University of Illinois, in a recent article in the *Annals of the American Academy*, summarizes this development as follows: Agricultural chemistry, founded by Liebig, was the original subject upon which agricultural education was founded; then came plant and animal pathology; then agricultural economics; and, finally, the organization of the farm,—the so-called "farm management."

In the presentation of farm management to classes, a basis in principle by which good pedagogical material is developed is easily found in using the law of proportions. This law is simply a redirected law of diminishing returns, and, since the essence of management everywhere is the right proportioning of factors, this law of proportions at once becomes paramount in teaching farm management. Specific examples of the dominancy of this law of proportions are furnished on every hand in technology, chemical science, and in art.

The management of farms offers the same opportunities for combining factors in the right proportions that are found in the spheres just mentioned, as may be readily seen in the proportioning of the three fundamental agricultural elements,—land, labor, and capital; of power to machinery; of the components of a balanced ration; of the size, number, and character of buildings to the size and character of the farm; and in many other instances.

The possibilities of practical farm management are strictly conditioned by the size of the farm. The medium-sized and large farms seem to offer the only chances that are worth while for the development of a real system of farm management.